April 24, 1997

TO: Margaret Allen
Staff, House Energy and Utilities Committee

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CC: K.C. Golden
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SUBJECT: RESIDENTIAL PROPANE USE IN WASHINGTON STATE

Margaret,

Per your request, I contacted a few propane distributors and collected some statistical information on residential propane use in the state. Propane is one of several gases (others include propylene, ethane, ethylene, butane, butylene, and isobutane) that are collectively referred to as "liquefied petroleum gases" (LPG). LPG is either distilled from crude oil at oil refineries or produced directly at natural gas fields.

Households account for approximately one-third of LPG consumption in Washington. Nearly half of LPG consumption occurs in the industrial sector (often before leaving the refinery), where it is used both to fuel boilers and as a chemical feedstock. The remaining one-sixth is accounted for by the commercial and transportation sectors.

LPG constitutes approximately 2% of residential sector energy consumption in Washington state, and approximately 3% of the water and space heating load. Natural gas and electricity account for three-quarters of water and space heating in Washington, while wood and distillate fuel oil are also used far more extensively than LPG. LPG is used mostly as a substitute for electricity or fuel oil in rural or remote areas without natural gas service.

1994 Washington Residential Energy Consumption

Fuel Type	Total Residential Energy Consumption (trillion Btu)	Consumption for Water and Space Heating (trillion Btu)	Share of Water and Space Heating Load
Electricity	101.2	30.4	27%
Natural Gas	55.3	52.6	47%
Wood	15.8	15.8	14%
Fuel Oil	8.9	8.9	8%
LPG	3.4	3.3	3%
Kerosene	0.4	0.4	0%
Total	*185.0*	*111.2*	*100%*

Sources: Energy Information Administration, State Energy Data Report; EIA, Residential Energy Consumption Survey 1993

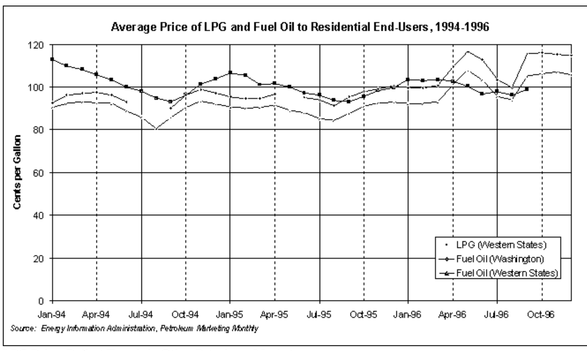
LPG is expensive compared to other fuels; only electricity is more expensive when compared using common energy units (British thermal units, or Btus). However, electricity is more efficient than LPG in end-use applications. In addition, many consumer-owned utilities (Public Utility Districts, municipal utilities, and cooperatives) sell electricity to residential customers for 3-4¢ per kWh, making it very competitive with LPG as a heat source. LPG is probably most competitive in remote areas served by investor-owned utilities, such as eastern King County.

1993 Washington Average Energy Prices to Residential Users

Fuel Type	Average Price to End-User (natural units)	Average Price to End-User ($ per million Btu)
Electricity	4.6¢ per kWh	$13.47
Natural Gas	50¢ per therm	$5.05
Wood	NA	NA
Fuel Oil	106¢ per gallon	$7.67
LPG	98¢ per gallon	$11.37
Kerosene	132¢ per gallon	$9.80

Source: Energy Information Administration, State Energy Price and Expenditure Report

LPG is a petroleum product, and is therefore not immune to the price fluctuations inherent to the petroleum industry. The average monthly price paid by residential customers ranged from 93¢ to 113¢ per gallon between January of 1994 and September of last year. More recent data are not yet available, but anecdotal evidence indicates that price fluctuations were particularly severe during the winter of 1996-1997. Although each petroleum product faces a distinct demand curve based on its various uses, the chart below shows that LPG prices have followed the same general trends as fuel oil prices over the past three years. Both LPG and fuel oil exhibit typical seasonal peaks, with prices rising during winter months and falling during the summer, with the exception of the spring of 1996, when unseasonable cold weather on the East Coast combined with low stocks and refinery fires in California to drive up prices of all petroleum products.



LPG Prices Reflect Trends in Other Petroleum Markets

LPG for residential use is sold by unregulated distributors, and is subject to state and local sales taxes. The market for LPG in Washington seems to be fairly segmented, with Western Washington distributors purchasing the bulk of their product wholesale from the large refineries in Ferndale and Anacortes, while Eastern Washington distributors rely primarily on rail shipments from Alberta with additional purchases from refiners on the west side and in Montana and Utah. Since LPG can be economically transported over long distances via rail, however, wholesale prices do not vary much across the state, and events in other regions of the country can and do affect prices in the Northwest.

The most common residential propane service involves the customer leasing a propane storage tank from a distributor. Customers are charged an installation/inspection fee, which ranges from $150-$250 and generally includes a gas check and leak test. Charges may also include an annual lease fee of $50-$75. Once the storage tank is in place, it may be refilled only by the company from which it is leased. Customers can opt for automatic refill service, in which the company estimates customer use and refills the tank on a regular schedule, or they can monitor their own use and request a refill at their convenience.

Because of common industry practice to lease, instead of sell, propane storage tanks, customers have very little flexibility to shop around for the best price. Automatic refill service reduces the customer's options even further, since the price at which the fuel is sold changes daily depending on weather and supply conditions, and exhibits wide seasonal variations. This may not be important for customers whose prime concern is reliable service; price-sensitive customers, however, find themselves largely at the mercy of the petroleum market and their distributor.

Though far less common, some customers choose to retain the ability to price-shop by purchasing their own storage tanks. Prices for a 100-120 gallon tank, for which no inspections are generally required and which can be stored adjacent to a building, range from $250-$450. Larger, 250-500 gallon tanks must be placed away from the structure, connected by an 18" trench, and range from $650-$900. Since propane use can exceed 200 gallons per month during the winter and 1,000 gallons annually, purchasing a large enough tank to ensure maximum refill flexibility is an expensive proposition.

The largest distributors on the west side of the mountains are Suburban Propane, Cenex, Ferrellgas, Norwest Propane and Empire. On the east side, major distributors are Ameri Gas, Ferrellgas, Northern Energy, V-1 Propane, and Interstate Propane. There are numerous additional smaller distributors, and one or more larger companies may have been missed in my conversations with distributors. Phone numbers for each of these companies can be found on the attached list of gas companies, which I photocopied from the Washington Business Directory.

I was not able to obtain sales volume data by company, since these data are regarded by the companies as confidential business information. The Washington State Energy Office had the authority under Chapter 43.21F of the RCW to "obtain all necessary and existing information from energy producers, suppliers, and consumers, doing business within the state of Washington," including sales volumes, for the general purpose of maintaining a repository of energy data. However, since the closure of the Energy Office, such information may be collected only for the purpose of preventing or mitigating energy shortages or disruptions. This change in the statute limits our ability to obtain the information you requested.

I hope you find this summary useful. Feel free to pass it along to anyone who is interested, and please do not hesitate to contact me at 956-2022 if you have additional questions or requests concerning propane or other petroleum products.